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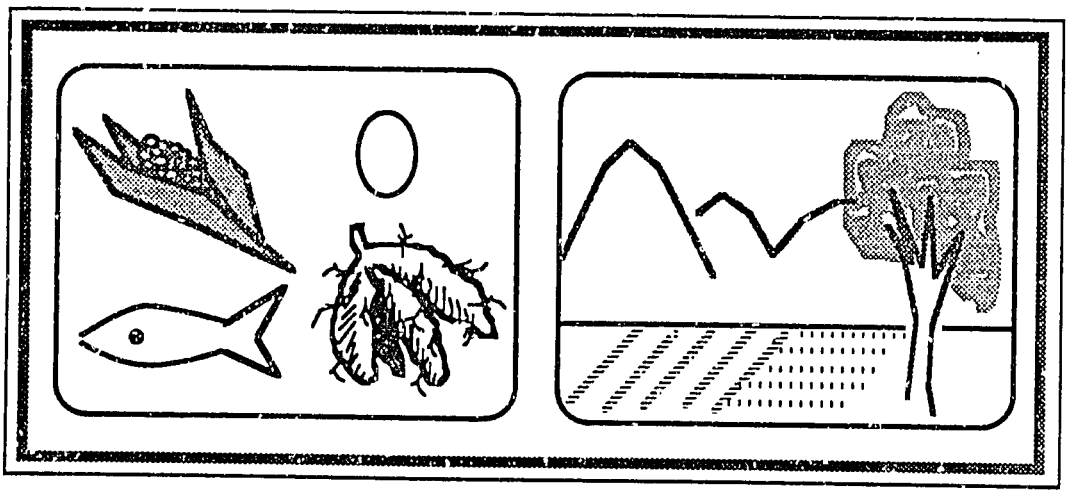
TECHNICAL SUPPORT FOR INTEGRATING NUTRITION INTO AGRICULTURE



Services Provided To USAID Missions

By

EDC
Education Develcpment Center, Inc.
55 Chapel Street
Newton, MA 02160 U.S.A.

Through AID Contract No. PDC1406-1-00-7029-00

Requests for EDC services in Nutrition in Agriculture under this IQC can be made to the Technical Offices (ARD or HPN) of each regional bureau or to the Office of Nutrition/S&T Bureau, (Attn. Nick Luykx)

"The focus of the Agency's Agriculture, Rural Development, and Nutrition Program is to increase the incomes of the poor majority and to expand the availability and consumption of food, while maintaining and enhancing the natural resource base," message from AID administrator in worldwide cable to USAID mission directors , May 7, 1987.

EDC (Education Development Center, Inc.), has recently been awarded a contract by the United States Agency for International Development, to enhance the process of integrating nutrition into agriculture by providing short-term technical assistance. This assistance can be provided to USAID missions directly, or through missions to host country governments, and PVOs.

TECHNICAL ASSISTANCE IN NUTRITION IN AGRICULTURE

A Service for USAID Missions, Government Agencies, and PVOs

TECHNICAL ISSUES THAT NEED TO BE ADDRESSED:

It has been conventional wisdom that increasing agriculture production will solve hunger and malnutrition problems in the developing areas of the world. Recent experience, however, indicates that increases in agricultural output do not always result in decreases in the incidence of malnutrition. The effort to combat malnourishment in the long term will require building production systems which emphasize food self reliance through planning at both the macro and micro level.

Under the *Nutrition in Agriculture IQC*, EDC is prepared to provide technical assistance to support agriculture sector initiatives aimed at improving food consumption and preventing/reducing malnutrition in low income populations in developing countries. Leading world experts in nutrition, nutrition planning, food technology, food marketing, agricultural extension, and related fields make up a distinguished roster of professionals available for IQC assignments. An illustrative list of activities, that EDC consultants can carry out, includes:

The development of project papers that deal with the consumption effects of agricultural policies;

The design of agriculture policies and programs that effectively increase consumption and reduce malnutrition among vulnerable populations;

Studies to determine food and nutrient intake patterns, as a method of informing agricultural crop selection;

The development of marketing plans that enhance distribution and consumption of local food products;

Assessments of the impact of PL480 commodities on household food consumption, nutrition levels, and local agricultural production;

Assessments of how food technologies can be used to enhance production and consumption;

Macro-economic analysis of the relationships between food production, distribution systems, and nutritional status;

The design of agricultural education, communications and training interventions that focus on improving dietary practices

PROFILES OF EDC NUTRITION IN AGRICULTURE PROFESSIONALS

The following is a representative list of professionals available for assignment under the IQC through EDC:

Lindsay Allen.

Specialist in functional assessment of nutritional status, pregnancy and lactation, and nutritional anthropology; frequently published author on agriculture's role in Latin American economic development and international nutrition.

James Bemis.

Rural sociology; communications support for extension programs; management of information and distribution systems; contractor to major international agriculture centers.

Anthony Dawson.

Supervision of food aid's impact on employment; pioneered ILO's management development program; directed evaluation of UN World Food Program; evaluation of food and nutrition programs.

Conrad Evans.

Associate Director of international programs at Oklahoma State University; served as manager of agricultural products company; specialist in crop sectioning, cereal grains production, and agronomy.

Timothy Frankenberger.

Directed farming systems studies in Mauritania, Liberia, and Sudan; conducted cultural and anthropological research in Nigeria; developed guidelines to integrate food consumption into farming systems projects.

Haddy Gabbidon.

Training of community health workers in nutrition and oral rehydration; training of other government staff; trainer for Gambia's Mass Media for Infant Health Project.

Jack Gershon.

Coordinates small agricultural production systems for the AVRDC Garden Program; carried out socioeconomic study of gardens in farming/family living systems; consultant to AID in nutrition and gardening.

Ronald Israel.

Directs and manages EDC's International Programs; development of communications and public education strategies; consulting to international agencies on food and nutrition programs; directs project supporting nutrition education actions overseas.

Joanne Leslie.

Research and policy analysis related to women and health; field research; consultant on Mass Media and Health Project in Cameroon; evaluation of Title II Food for Peace program.

Richard Lockwood.

Directed home and village-based weaning food project; consultant in primary health care, nutrition, and agriculture; nutritional surveillance in the Sudan; elaborated maternal-child health and nutrition programs.

Joseph Maga.

Food quality control; food storage and processing; food analysis and nutritional analysis; professor in food science and human nutrition.

James McDowell.

Directed UNICEF assistance programs in Uganda; chief of UNICEF's Food, Technology, and Nutrition section; initiated Village Technology Unit in Kenya; technical assistance in food science and technology, as well as food policy development.

Reynaldo Martorell.

Consultant to international agencies in assessing nutritional status, evaluating nutritional interventions, measuring living standards and the impact of agricultural shifts on nutritional status; member of food and nutrition board of National Academy of Sciences.

Peter Pellett.

Use of computers in nutritional investigations; evaluation of foods' protein quality; specialist in nutrition in the Middle East; studies on relationships between dry land agriculture, food science, and human nutrition.

Gretel Pelto.

Research on market systems, nutrition, and health practices in Mexico; consultant for research project on infant feeding practices in Guatemala and Cameroon; anthropological research on factors affecting food use and intake.

James Pines.

Evaluation specialist in nutrition and health fields; evaluated national nutrition programs in Chile, Costa Rica, Lesotho, and Philippines; design of oral rehydration projects; wrote handbook on weaning problems.

Susan Poats.

Carried out rapid food consumption assessments and assessed pre-school malnutrition; coordinator of Farming Systems Support Project; research in medical anthropology; assessments of women's role in production, marketing, and consumption of food products

Ernesto Pollitt.

Senior consultant to UNICEF on child development in the Third World; prepared anthology of studies on effects of malnutrition on school achievement; assisted in developing early childhood intervention programs in Latin America.

Beatrice Rogers.

Investigated effects of national food price policies on household and individual food consumption in two countries; research on food distribution systems; designed socioeconomic and behavioral segments of Pakistan national nutrition survey.

Paul Sommers.

Technical and managerial advice in marketing of agricultural commodities in Philippines; specialist in school gardening and agricultural extension; assisted Indonesian National Home and Village Gardening Program. M.S. in Human Nutrition from University of the Philippines at Los Banos.

Gregory Sullivan.

President of firm specializing in market research and product development for agricultural commodities; studied livestock and meat marketing in Ghana, fish marketing in Indonesia; professor of agricultural economics.

Lance Taylor.

Professor of economics at Massachusetts Institute of Technology; studied patterns of economic and industrial growth; specialist in macro-level economics of food policy structures.

Charles Peter Timmer.

Special food economics advisor to governments of China, Indonesia, and the Philippines; surveyed employment aspects of investment in rice marketing in Indonesia; served on National Academy of Sciences World Food and Nutrition Study; specialist in food and economics.

Marian Zeitlin.

Nutrition planner; trained professionals from developing countries in computer analysis of nutrition/health survey data; studies factors affecting nutritional status among disadvantaged families in Mexico; consultant to international agencies on nutrition-related areas.

MATRIX OF EXPERTISE AND LANGUAGE

III. MATRIX OF EXPERTISE AND LANGUAGE

SKILLS CATEGORY	Nutrition Planner	Food Production/Consumption	Survey Design and Data Analysis Specialist	Food Economist	Nutritional Biochemist	Cultural Anthropologist	Nutritional Anthropologist	Horticulturalist/Agronomist	Food Technologist	Community/Public Health Nutritionist	Nutrition Education/Communications Specialist	Food Production/Consumption Evaluation Specialist	Nutrition Manpower Development/Training Specialist	Rural Sociologist	Management Specialist	Behavorial Psychologist	Typist	LANGUAGES: Aku	Arabic	Cantonese	Creole	Finnish	French	Fulani	Ga	German	Indonesian	Italian	Mandarin	Mandinka	Portuguese	Spanish	Twi	Urdu	Wollof	Yorubo
Charles Timmer				X																							X								
Timothy Frankenberger						X													X				X			X						X			X
Susan Poats						X																	X								X	X			
Ernesto Pollitt																X																			
Peter Pellett									X										X				X												
Joseph Maga									X														X				X				X				
Reynaldo Martorell		X	X	X																										X	X				
Jack Gershon								X																X				X			X	X			
Paul Sommers								X																							X				
Lucas Hendratta													X													X					X				
Ronald Israel											X				X								X								X				
Lindsey Allen					X																		X								X				
James Bemis														X									X								X				
Anthony Dawson												X			X								X					X			X				
Conrad Evans								X															X								X				
Haddy Gabiddon													X					X		X				X					X					X	
Joanne Leslie										X													X							X	X				
Richard Lockwood										X																				X	X				
James McDowell		X							X																										
James Pines	X																																		
Gretel Pelto							X															X	X								X				
Beatrice Rogers		X																					X								X		X		
Gregory Sullivan												X											X				X								
Lance Taylor				X																										X	X				
Marian Zeitlin	X	X	X	X																X			X			X					X				X
Claire Karesky																	X																		

ABOUT EDC

Established in 1958, Education Development Center, Inc., (EDC) is an educational management and project development corporation with a staff of 120, a network of 500 worldwide associates, and annual revenues averaging $7 million. It currently administers more than 40 projects in the United States and the developing world.

EDC has had extensive experience in providing quick response requests for short-term technical assistance in nutrition in the U.S. and overseas. Since 1979, EDC has managed more than 180 technical assistance missions in 41 developing countries and the U.S. under a centrally-funded project with the AID's Office of Nutrition (the International Nutrition Communication Service - INCS Project). Our average turn-around time in response to requests for technical assistance is twenty days.

APPENDIX A: Excerpts from EDC's Nutrition in Agriculture IQC Technical Proposal to AID

IV. TECHNICAL PROPOSAL

Introduction

It has been conventional wisdom that increasing agricultural production will solve hunger and malnutrition problems in the developing areas of the world. Recent experience, however, indicates that increases in agricultural output do not always result in decreases in the incidence of malnutrition. (Frankenberger, 1985, p.1) The effort to combat malnourishment in th long term will require building production systems which emphasize food self-reliance through planning at both the macro and micro level.

EDC welcomes this RFP as coming at an auspicious time in the history of development. There is a consensus, particularly within Africa, that agriculture is the number one priority and that increases in agricultural productivity should be used to address the chronic problem of food shortages at home.

> "The reality is that the average African, who depends critically on agriculture for a living, is poorer today than he was in 1970. If the problems of agriculture are not addressed more effectively, he will be poorer in 1990 than he was at the time his country became independent. And what is even more ominous, the disastrous famines that are currently restricted to years of drought and to only a few countries will become everyday occurences affecting a majority of the sub-Saharan nations." (The New York Times, Tuesday, May 27, 1986.)

The many important issues that EDC will address under the nutrition and agriculture IQC are discussed below. Our narrative follows the outline of topics in RFP AAM/W/CO-86-004. It identifies key issues that need to be addressed under each topic, and shows how, for each issue, members of EDC's team can assist AID.

Assessment of Nutrition Problems and Recommendations for Improvement through the Agricultural Sector

A first step in determining programs and polices to integrate nutrition into the agricultural sector is development of an information base. This serves a number of purposes: providing information necessary for nutrition program planning, setting agricultural policy, targeting at risk populations, setting policy at national level, and providing baseline data for later evaluation of program and policy effectiveness. An information base for integrating nutrition with agricultural sector policies and programs should be based on research into food attitudes and beliefs, food intake patterns, food storage and preparation practices, household income and expenditure patterns, and food distribution systems.

Food Attitudes and Beliefs

An understanding of food attitudes and beliefs of vulnerable communities has been a missing element in many agricultural projects. To assess the nutrition problems in LDCs, it is important to understand food attitudes and

beliefs which may help determine food consumption patterns which in turn determine the nutritional status of the individual. Consumption is influenced by attitudes and beliefs about food and health. For example, hot/cold food beliefs, which are often widespread in developing countries, can influence food choices among the vulnerable groups, such as pregnant and lactating women, infants and small children. (Vermury, 1980) Attitudes towards prestige foods (e.g., imported commercial luxury products) associated with social status can help determine household food expenditure and consumption patterns (See Jelliffe and Jelliffe, INCS Consultant Report from Brazil, EDC, 1982.)

Understanding attitudinal and belief sytems, prior to undertaking the design of agricultaral interventions, enhances program outcome. Identification of those at risk of malnutrition or those already malnourished allows targeting of programs to those most in need; and understanding of the food-related attitudes and beliefs of those groups can help tailor agricultural activities to the local setting.

Gathering information about household attitudes, beliefs, as well as practices, is often done using qualitative research, e.g. ethnographic investigation or focus group research. EDC's team includes experienced anthropologists, such as Gretel Pelto, who have done extensive research in ethnography of food and nutrition. Joanne Leslie, an experienced nutrition communication specialist, is available to design and implement market research attitudinal studies.

Farming systems research represents another viable technique for collecting information on community food-related beliefs, attitudes and practices. Farming systems research incorporates the gathering of information on food beliefs and practices into a broader approach which examines the rural agricultural household as a decision making unit. EDC's team includes two outstanding experts in farming systems research--Timothy Frankenberger and Susan Poats. Both have had experience looking at household level nutritional factors that influence farm families in making basic resource allocation decisions.

Food Intake Patterns

Knowledge of actual food intake patterns of target populations is also essential to develop successful programs and policies. Knowledge of food intake can be used to analyze total nutrient intake and thus identify nutrients absent or in short supply. This information is used to determine appropriate action in the agriculture sector. Crops selected for introduction into the local agricultural sector should provide nutrients missing or in short supply, be available in quantity, at prices people can afford to pay, and be palatable and acceptable to local tastes.

Methods used to gather this data include observation of household food supply including the types of foods grown or purchased, as well as preparation techniques. Information is gathered on number and timing of meals and seasonal variation in intake. Data are collected using survey instruments such as 24-hour recall, food frequency tables, or diet histories paradigms.

Information on consumption patterns is important for targeting areas and groups nutritionally at risk.

Adequate growth in children is another indicator used to assess nutrient intake. Rapid assessment of growth through anthropometry provides a measure of nutritional adequacy. Gathering data on infants and children low in weight for age (indicating acute malnutrition), low in height for age (indicating chronic malnutrition), or using other anthropometric indices such as arm circumference, can help in targeting those segments of the population at risk.

For advisors on food intake activities, EDC's team includes Dr. Marian Zeitlin who has done rapid assessment of nutritional status of communities in numerous country settings and Dr. Reynaldo Martorell who recently served as advisor to a workshop on "Impact of the Choice of Agricultural and Food Supply Policies on Nutrition and Health Status" for the UNU/UNDP.

Food Storage and Preparation

Shortfalls in total food supply may result in malnutrition, especially in the most vulnerable groups. An important element of such shortfall may be losses incurred AFTER harvest. Reduction of losses occuring between harvest and consumption, therefore, may be important in increasing total food availability. How extensive is this problem? The exact extent of loss is unknown since assessment is very difficult. There is great variation in loss by location, season, etc. The rule of thumb is that 10% of grains and 20% of non-grain staples are lost. The figures are even higher for perishables such as fish. (National Academy of Sciences, 1978)

Food preparation practices also should be examined as part of a nutrition information base for agricultural policies and programs. Common recipes and techniques of preparing food need to be analyzed for basic nutrient content (to discover where the shortfalls lie and what crops should be locally produced to make up the difference). Local food preparation practices also are an excellent source of market research that can be used as a reference for the development of local food industry products.

EDC's project team includes several distinguished food technology and storage specialists who will help us assess food preparation and storage practices and recommend appropriate approaches for strengthening existing systems. Dr. Joseph Maga has demonstrated expertise in modern high technology approaches to problems of food technology and food preservation. James McDowell is a pioneer in the use of household appropriate technologies to improve nutritional practices in developing countries. Mr. McDowell also is a member of the Working Group on Household Nutrition Appropriate Technology of the International Union of Nutritional Sciences, chaired by EDC's Ron Israel.

Household Income and Expenditure Patterns

In the aggregate, it is well established that household income is a significant determinant of nutritional status. Low income groups are at high risk of malnutrition. However, at identical levels of income some households are better nourished than others. For example, certain nutrients such as Vitamin A are deficient in many diets but NOT because of cost. In some areas the amount of calories purchased is not equal to the amount of calories

used for nourishment. Simply increasing food production or total food supply is not always sufficient to combat the problem of malnutrition. Conversely, increased expenditure patterns, especially food expenditures, may lead to increased expenditure on food staples in some settings while in other cultural milieus this income may be used for expenditure on purchased specialty foods (Jamaica) or other expensive products which do not increase total nutrient intake.

Methods of data collection in this area should include gathering information on total household income and expenditure patterns, especially food expenditures, as well as information on home grown foods to determine any problems in obtaining adequate nutrition. Special issues to be explored include seasonal variation in expenditure and food availability, expenditures on imported versus local commodities, and expenditure patterns in relation to the nutritional status of household members. Detailed information at the micro level is important since aggregated national level data may disguise problems of malnutrition in vulnerable groups.

Of special interest in this area is exploration of the relationship of women's work, household income, expenditures, and nutritional status. Results of studies in this area have been contradictory. For example, research by Robert Tripp in Ghana indicated that mother's employment increased food expenditure and, thus, child nutrition status. In other settings, such as the Gambia, mother's heavy contribution to agricultural work in the planting season was associated with poorer child nutrition status.

In this area EDC's team includes Dr. Beatrice Rogers who has worked in the area of analysis of food expenditure at the national level and has done pioneer work assessing determinants of intra-household food distribution patterns.

Current work, being led by EDC team member Dr. Joanne Leslie, is examining the relationship of women's employment patterns and nutritional status in the context of the specific age of the child, paid versus agricultural labor, distance travelled to work, etc.

Food Production and Distribution Systems

What are the relationships between food production, distribution systems and nutritional status? At a local level, distribution systems are very important because lack of access to markets is a leading production disincentive for farmers. Lack of market access can be determined by factors such as inadequate transportation, unresponsive pricing policies, and a lack of marketing strategies for local commodities.

From a world market perspective, food production and distribution systems can have both good and bad effects. Effective cash crop production may increase local income and employment. When world prices fall, however, world market dependency may mean falling incomes and consequent loss of food purchasing power in low income communities. Government import/export policies have a critical role to play in determining the market price of local commodities, as well as in affecting the ability of third world farmers to penetrate the market place of industrialized countries. (Duncan and Lutz, 1984)

EDC's team includes a noted economist (Peter Timmer) and a food marketing specialist (Gregory Sullivan) who will address food marketing and distribution issues. Dr. Timmer's areas of expertise are macro food policy and marketing and price policy. Dr. Sullivan is one of the few professionals in his field with experience in the development of marketing programs for locally produced nutritious foods in developing countries.

Design of consumption/nutrition activities as components of agricultural sector programs and projects

o Food Production Activities

Selection of crops to be included in the design and promotion of food production activities depends on a variety of factors. The crops selected must be acceptable at the household level, i.e. compatible with existing food-related beliefs, attitudes, and practices. Choice of crops should respond to the nutrient needs of vulnerable communities. Choices must take into account seasonality factors of production, labor requirements, projected cost/price ratios, and market access.

Macro level pricing and marketing policies will obviously affect farmer willingness to produce nutritious crops for the domestic market. The development of nutritionally responsive agricultural research programs should also be encouraged as a way of enabling farmers to test new crops in terms of potential yield and acceptability.

Appropriate post harvest food technologies

Post harvest food technologies can be divided into two kinds of activities: those relying on high level and sophisticated technologies,* or appropriate technologies which are chosen to fit into the skills and resources available in rural areas of the developing world. Household nutrition-appropriate technology refers to improved methods for growing, handling and using food in the home. Included are techniques for small-scale food production, household storage, food processing and preparation, culinary technology, serving and nutrition sanitation. Activites include gardening, composting, fish ponds, small animal production, storage cribs, fermentation, solar drying, salting, solar cookers, biogas stoves, multimix weaning foods, and numerous other innovations. EDC has helped apply appropriate technologies to the field of nutrition. The First Asian Household Nutrition Appropriate Technology Conference, organized by EDC, produced a useful set of reference papers which describe the relationship of specific appropriate technologies to nutritional status.

Our IQC team includes Jack Gershon, Paul Sommers, and Jim McDowell who have extensive experience in the area of appropriate technology and have participated with EDC in the development of the field of household nutrition appropriate technology. (The team also includes two experts in centralized food technologies--Joseph Maga and Peter Pellet.)

*Appropriate is a good description for high level centralized technologies in heavily urban areas, or in resource sparse regions.

Nutrition education/information in agricultural outreach programs and formal/informal training

Great advances have been made in the state of the art of nutrition communications during the last decade. EDC's International Nutrition Communication Service has been at the forefront of an effort to utilize new education, communications and marketing techniques to promote nutrition-related behavior change.

However, most of the successful applications of nutrition communications (e.g. Thailand infant feeding practices project and Indonesian Nutrition Improvement project) have taken place within the context of an overall public health frame of reference. There is a need to integrate nutrition communications more effectively within the context of agricultural extension. For example, agricultural extension agents could be a focal point for a social marketing campaign to promote improved household nutrition technologies.

In formal education, there is a need to continue the work that EDC has done to integrate nutrition into schools of agriculture in developing countries. If agricultural policy is to become more responsive to nutrition needs, it is essential to train agriculturalists in nutrition-related concepts and techniques. It is worth exploring the interest among LDC's in adopting the nutrition teaching and learning materials, developed by EDC for AID and FAO, now in use in schools of agriculture in Indonesia, Ecuador and Chile.

Ron Israel, JoAnn Leslie, and Lukas Hendrata are included as part of EDC's IQC team to work nutrition education communications issues.

Systems development for production, preservation and distribution of fortified food products

The steps involved in the design of centrally produced fortified food products include identification of the population or community in need (see section on assessment above); setting goals for sales, market share, income and cash flow and for the improved nutrition of target groups; conducting market research and engineering feasibility studies; product development and testing; selecting among processing alternatives; determining plant management; establishing packaging, pricing, distribution and sales policies; and securing needed financing.

The consultant roster for this project includes Dr. Joseph Maga and Dr. Peter Pellet, both of whom have extensive experience in the area of food processing and food technology which would enable them to lend expertise to all phases of development of fortified food products.

Programs to increase household food consumption/nutrition levels (PL480 and similar programs)

Public Law 480 is the enabling legislation for distribution of surplus agricultural commodities to designated countries through maternal child health (MCH), school feeding (SF) and food for work (FFW) programs and more recently through the 416 program. While food itself is not a program, it can be used to enhance programmatic objectives.

It is worth exploring to what extent donated commodities act as a disincentive to local agriculture. How do sales and distribution of surplus commodities affect the overall market price structure for agricultural products? What is the effect on overall food expenditure/consumption patterns when surplus commodity distribution programs result in food leakage (foods are consumed by those other than the targeted individual), and substitution rather than complementary consumption effects (commodities are used as substitutes for foods which would otherwise have been consumed).

To address the impact of PL480 programs on household food consumption/ nutrition level, EDC proposes Jim Pines who has been involved widely in evaluation of PL480 programs and Anthony Dawson, a food program planning and evaluation specialist formerly on the staff of the World Food Program.

Incorporation of consumption/nutrition goals, objectives and activities into food and agricultural plans and policies

- Analysis of effects of agricultural policies on consumption/nutrition

What are the effects of agriculture policy on consumption/ nutrition? The effect of increased agricultural production on target group food consumption is an indirect linkage. The linkage may occur through income earned by producers, or through changes in consumer food expenditures. This macro economic environment must be considered in the design of agricultural policy.

Agricultural policy does NOT have only nutrition goals. Other goals may include increasing employment opportuniites, foreign exchange, or public revenues. Increased food consumption of target groups, i.e. families whose members have a nutrient deficit, can be a goal of agricultural policy. One of the tasks of the nutrition IQC should be to undertake a dialogue to sensitize agricultural policy-makers to the importance of targeting nutrition goals and to appropriate, specific supportive policy alternatives that can be explored. Policy options include increasing household income through income enhancement activities, designing more efficient food marketing and distribution systems, and lowering the price of food staples. Potential conflicts of increasing income versus lowering the price of foods should be considered in setting policy.

Public divestiture and deregulation policies can also affect food consumption and nutrition practices. Increases in efficiency that may accrue as a result of the privatization of agriculture will be passed onto the consumer in the form of lower prices and a more abundant variety of produce.

Peter Timmer and Lance Taylor, two world renowned food economists, will help AID and LDC policy-makers analyze the effectiveness of agricultural policies on consumption/nutrition.

- Assistance in preparation of national food and nutriton policies, strategies, and programs

The original concept of nutrition planning was developed to express the growing realization that improving nutrition was dependent upon understanding its connections with agriculture, economics, food beliefs, consumption

patterns, socioeconomic status, health and illness, and numerous other factors. Recognition of the need to place this complex web of interrelated factors within a policy framework was summed up in the concept of nutrition planning.

As the concept of nutrition planning evolved, the first area of integration was in health. The concept of nutrition planning was used to integrate nutrition into health sector programming more effectively on many levels. For example, nutrition concerns in many countries now lie within the ministry of health. Nutrition activities are integrated down to the level of health post so that nutrition monitoring and education may be carried out in health posts in many areas side by side with traditional health activities such as immunization, and other curative and preventive health measures. (A specific example: In Nepal, the development of a nutritious weaning food, Sarbottam Pitho, has been coordinated by a Nutrition Cell in the Ministry of Health which also coordinates the overall national nutrition strategy.)

The time has now come to integrate nutrition more closely with agriculturally oriented policy and programs. The five year plans of governments can build nutrition into its agriculture sector as well as the health sector. This AID project can contribute to this effort through promotion of dialogue between nutrition and agricultural planners. To tackle this problem, EDC's team includes Dick Lockwood who served as a consultant in Liberia, examining the interrelated issues of agricultural policy, child nutrition status and women's work load; Dr. Marian Zeitlin who has worked with the planning ministries of governments in many areas of the world; and Jim Pines, one of the pioneers of the international nutrition planning movement.

Design and implementation of consumption/nutrition activities in appropriate governmental planning units

Existing public sector compensatory programs include food subsidies (price supports or rations) created to benefit the bottom 20% income group; income transfer programs such as food stamp and food supplement programs; and income generation activities.

It is well established that food subsidies work for the very poor; however, they also may be very expensive. For example, the food subsidy program in Egypt costs as much as 22% of the GDP in 1977, and is currently estimated at 8% of the total GDP. (Rogers et al 1981)

Important compensatory program design issues include targeting programs to low income households or households at significant risk of malnutrition; targeting the household rather than the individual; and educating the household on the importance of appropriate nutrition and intra-household distribution practices.

It is worth noting that the recent UN agreement on an African AID package included a commitment by African countries to end targeted urban price support policies. As an alternative to price support, several countries, e.g., Jamaica, are exploring the use of targeted food stamp programs.

Dr. Beatrice Rogers, who has carried out a detailed study of ration shops in Pakistan, is directing studies of food subsidies in both Mali and Dominican Republic and has also been instrumental in the development of new methods for studies of intra-household food allocation.

o Evaluation of the effectiveness and impact of programs to enhance food consumption/nutrition i.e. PL480

Evaluation of PL480 programs have been inconclusive in terms of their impact on nutritional status. Many evaluations had hoped to document increased nutrition status but such results are rarely found. (Beaton and Ghassemi, 1979) This may be due to a number of factors: substitution of program foods for other foods resulting in small or no net increase; use of increased energy intake for activity rather than growth; leakage of foods from targeted individuals to other household members.

Future PL480 program evaluations should consider more closely other relevant but indirect measures of nutrition status such as increased income or food consumption, effects on agricultural production, and the development of infrastructure as a result of FFW programs.

EDC's IQC team includes Anthony Dawson and Jim Pines widely experienced in evaluation of both PL480 and World Food Programs activities.

Evaluation of effectiveness of consumption/nutrition activities in agricultural programs and projects

o Impact of consumption/nutrition activities

"The extent to which results correspond to objectives indicates the effectiveness of an activity." (FAO, 1983) To determine effectiveness requires clear definition of objectives and availability of good indicators. Comparison with baseline data will then give a measurement of program effectiveness.

Indicators of nutrition impact can be rates of growth, decreased prevalence of malnutrition, measures of morbidity or mortality, or increased food consumption and changes in food habits. Other outcomes are difficult to measure, such as encouraging self-reliance, but may be an important outcome.

Dr. Marian Zeitlin already has done important work for AID in establishing evaluation impact indicators for consumption/nutrition programs in LDCs. As part of EDC's team, she will continue her efforts in this area if requested by the IQC.

o The cost effectiveness of consumption/nutrition intervention alternatives

In many nutrition activities, the design is such that the target group has access to all the resources of the program. The target group in agriculture programs, however, may have only an indirect link to resources through their labor or through their consumer activities in the market. Evaluation should consider what percent of the effort in the agriculture sector should be

attributed to nutrition rather than other competing goals of agriculture policy.

Cost effectiveness may be measured in some interventions as an economic output such as increased food production, payment for health services, reduction of food loss during storage, or increased worker productivity. The measure here is always monetary value whether measured directly or indirectly.

To calculate cost effectiveness, it is important to measure the total cost of the intervention including personnel equipment and material. The rule of thumb suggested by the FAO is that the cost of a nutrition intervention in poor countries is low if the cost per person is less than one percent of the GNP per capita per year; medium if between 1 and 2.5 percent; and high if it is above 2.5 percent. (FAO, 1983) Costs can also be expressed as cost per beneficiary or cost per person cured or protected.

Evaluation of cost effectiveness may encounter a number of problems. Nutritional status, a common measure of nutrition effectiveness, rarely results from clear cut cost measures. Impact can also be estimated using non-nutrition data, such as local price of food staples, wages or household incomes, or infant mortality rates, if the linkages between indicators and causes of undernutrition are understood. (A.I.D. Policy paper: Nutrition, 1982)

To determine cost effectiveness of a program accurately, goals must be clearly defined and appropriate indicators determined prior to implementation. One promising approach is farming systems research which emphasizes collection of baseline data in many areas of nutrition concern, prior to onfarm research. Such baseline data provide criteria against which program effectiveness can be measured versus total program costs.

o Efficiency and effectiveness of systems for planning and implementing consumption/nutrition activities

Process evaluation of consumption/nutrition activities will look at the effectiveness of program planning and implementation systems. In terms of food distribution programs, for example, evaluators will need to look at the efficiency of distribution and storage systems. Logistics management is a key variable in this endeavor.

Evaluating the effectiveness of program planning and implementation systems involves assessing the adequacy of existing baseline data, asking basic questions about whether commodities reach targeted communities in time, whether there is any commodity leakage, whether or not commodities are actually consumed by recipients for whom they are intended.

EDC IQC team members, Jim Pines, Anthony Dawson, and Ron Israel have all had experience designing consumption/nutrition planning and implementation system evaluations for AID.

o Effectiveness and impact of PL480 and other food assistance programs

PL480 commodities are not programs, but resources which can enhance the effectiveness of other programs. Current emphasis of PL480 policy focuses on

phase out and phase over of programs in many countries. This policy stresses self reliance where the local community can take over the running of the programs with use of locally aviailble foods, especially in school feeding programs.

Effective evaluation relies upon programs having carefully determined goals that will set the standard against which evaluation can be measured. Unfortunately, programs may lack such goals creating an impediment to effective evaluation. Some programs have multiple goals. For example, School Feeding may have wide ranging goals including improvement of nutritional status, improved enrollment and attendance, increased academic performance and intellectual development, increased enrollment of girls and children from the poorest sectors of the population. The program must have clearly determined priorities for effective evaluation to take place. The stated goal determines the indicator to be used to measure program performance, i.e. if the goal is increased attendance and enrollment, indications of school drop out rate might be the best indicator, but if the goal is improved academic performance, rates of repeating might be the chosen indicator.

PL480 commodity distribution is often carried out by voluntary agencies such as CRS, CARE, and others at the request of AID. The policies and goals of AID and the voluntary agency administering the programs may be quite different. It is important that these different goals be carefully considered in carrying out evaluations.

EDC's IQC team includes Jim Pines and Anthony Dawson, experienced evaluators of both the PL480 and WFP commodity distribution programs. Dr. Ernesto Pollit, another member of EDC's team, is a specialist in evaluting the impact of feeding programs on learning ability and behavioral patterns.

o AID/W and USAID agriculturally-oriented consumption/nutrition activities

Consideration should be given to providing guidelines to USAID Agriculture, Food for Peace, and nutrition officers on ways in which nutrition concerns can be built into agricultural activities in LDCs. Special training workshops for USAID officials also could be organized on topics such as nutrition and agricultural planning, ordering PL480 commodities from a nutritional point of view, food marketing in LDCs, price subsidies, ration programs, and food stamps, et al. Position papers could be developed on the above and related topics.

We recognize that the IQC has been designed to service the needs of AID as well as the needs of decision-makers and program planners in LDCs. All of the members of EDC's IQC team are prepared to backstop AID/W and USAID missions on requests for assistance relevant to the IQC's scope of work.